**Scientific Methods Project DUE DATE: 4/13/15**

**The purpose of this project is to reinforce the use of scientific methods to plan and execute an experiment that is of student choice. Students must employ scientific methods to design their own experiment and experimental protocols. Students may utilize an existing experimental design, but students must still perform their own experiment. The following scientific methods must be employed in this process:**

* **Observation (Observe a testable problem/idea)**
* **Formulate a hypothesis (create a testable prediction)**
* **Test hypothesis (perform an experiment)**
* **Collect data (qualitative and/or quantitative data must be collected)**
* **Analyze data (what did the data tell you?)**
* **Form a conclusion (what are the significant findings of your experiment? How can you apply this information in the future?)**
* **Share results (students must create a poster to present that captures their experimental procedures and findings)**

**POSTER MUST INCLUDE THE FOLLOWING COMPONENTS:**

* **Graphs and or Data Table that communicates observed data**
* **Hypothesis formed and tested; Cite controls and constants used**
* **Summary of Data Analysis and Conclusion**
* **Written Lab Report (must abide by lab report guidelines required for lab exercises)**

***FURTHER CONSIDERATIONS:***

***\** Experiment MUST be SAFE and APPROVED by Mr. Rocksund\***

**\*This assignment must be completed individually\***

**RESOURCES:**

[sciencebuddies.org](http://sciencebuddies.org) **has many science fair project ideas; check it out!**

**Students are encouraged to use resources in the classroom and low cost materials for the science fair; there are many great experiments that can be performed with materials available in the science classroom and/or with inexpensive materials. If students would like to purchase materials for their project, that is their decision.**

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|  | **1-5 points** | **6-10 points** | **10-15 points** |
| **Use of Scientific Methods** | **Hypothesis is poorly stated; experimental design is weak** | **Hypothesis being tested is adequate; experimental design is sound** | **Hypothesis is clearly stated; experimental design is exceptional** |
| **Substance of Poster** | **Poster does not clearly communicate experimental intentions and/or results** | **Poster adequately communicates idea being tested, hypothesis,experimental procedures, data, and results** | **Poster clearly communicates idea being tested, hypothesis,experimental procedures, data, and results** |
| **Meetings Deadlines; Lab Safety; Use of Class time** | **Student/Students poorly managed class time to work on project; Lab safety was not appropriate** | **Student/Students adequately managed class time to work on project; Lab safety was appropriate** | **Student/Students effectively managed class time to work on project; Lab safety was appropriate** |
| **Formatting/ Appearance of Poster** | **Poster is poorly formatted; key information is difficult to locate/read** | **Poster is formatted adequately, but key information is difficult to locate/read** | **Poster is neat, professionally polished, and makes key information easy locate/read** |
| **Total Points Possible** |  |  | **60 points total** |

**\*\* A minimum of one outside source must be cited from your research for your poster. Sources must be either a .org, .edu, or .gov website. No Wikipedia! You may use Wikipedia as a starting point, but not as a primary resource in your project. \*\***

**\*\*\*Students have a choice to present their project at the Science Fair, 5 pm April 20th at the school. Awards will be given for best science fair projects. It is not required for students to present at the fair, EXCEPT for students in the Science Club\*\*\***